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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/613,227  | 07/03/2003  | Lewis James          | 1592-4              | 7021             |
| 44190   | 7590        | 12/15/2005           | EXAMINER            |                  |
| WALTER W. DUFT<br>LAW OFFICES OF WALTER W. DUFT<br>8616 MAIN ST<br>SUITE 2<br>WILLIAMSVILLE, NY 14221 |             |                      | BENENSON, BORIS     |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2836                |                  |

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/613,227             |  | JAMES ET AL.        |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Boris Benenson         |  | 2836                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/26/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

***Detailed Actions***

***Drawings***

1. The drawings are objected to because it is not clear what numbers 0.005 and 10 are representing.
2. Figure 3 of the drawings includes a set of data such as monitor's setting. Such data should be removed from the drawing and may be included in the specification. Figure 3 is labeled as Fig.3 and Plot 1.
3. Figure 4 includes a legend with symbols that cannot be found on the drawing. Figure 4 is labeled as "Fig.4" and "Diagram 1".

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 describes steps used in forming a spark gap between traces on PCB for protecting an electrical circuit from voltage surges. There are two distinctive ways to create such gaps: by removing some conductive materials from certain places on a surface of PCB substrate or by adding such materials. It is unclear what step of "positioning said first and second end faces during said forming steps" means. Besides the disclosure indicates that "Applicants have produced such spark gaps but a laser technique" and "laser was used to vaporize a cooper trace". Such a process of vaporizing of copper is provided after the cooper trace have been formed and hardly reads as "positioning said first and second end faces during said forming steps".

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the

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differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karnes (6,600,642) in view of Wessing (4,527,215). Karnes disclosed a Method And Apparatus For Lightning Suppression In A Telecommunication Printed Circuit Board. The apparatus comprises a first electrical circuit trace element - ground conductor (Fig.3, Pos. 28) and a second electrical circuit trace element - floating element (Fig.3, Pos. <sup>32</sup>~~28~~) having a first end face and a second end face facing each other, length of elements indicated by arrow (34), "floating element 32 has the same thickness as the other traces on printed circuit board 22; however, it may be formed with a different thickness if desired" (Col.5, Lines 11-15). Karnes disclosed, "At some voltage, depending on the distance between conductors, the insulation offered by air that separates these conductors is broken down, resulting in an arc" ((Col.1, Lines 44-46). The voltage when the arc occurs is a breakdover voltage for spark gap device. Karnes is silent about conditions of temperature, humidity and air pressure on which device is designed to work. Wessing teaches a Valve Type Voltage Arrester. Wessing teaches "The spark gap conventionally comprises two electrodes between

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which is a dielectric material which is subjected to external influences without hindrance with the result that changes in the ambient temperature, atmospheric pressure or air humidity can change the trigger voltage. It must, therefore, be ensured that even with unfavorable atmospheric conditions, the spark gap does not break down at the normal supply voltage but only when an overvoltage is present" (Col.1, Lines 53-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Karnes with teachings of Wessing and take into consideration potential temperature, humidity and air pressure when designing a size of the gap, because it will ensure that the device is protected in all possible atmospheric conditions. It is inherent to have a parasitic capacitance between two parallel traces, therefore it is inherent to consider the length of such parallel traces and a distance between them as a source of a parasitic capacitance.

Referring to Claims 2-7, all parameters of the gap such as a gap width and a gap length are result of calculations and optimization. It is well known that ESD voltage for a human body model (HBM) is about 2 kV. Based on that ESD voltage and expected environment characteristics approximate width should be estimated and optimized. Karnes disclosed a width of the gap as approximately 0.015 inches. That number provides enough

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information to ordinary in the art to calculate the parasitic capacitance and if the capacitance is not acceptable to optimize the gap's length and/or the gap's width.

Furthermore parameters such as parasitic capacitance that can be tolerated are known in the art and are subject to routine experimentation and optimization to achieve the desired range of range frequencies. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### **Contact information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris Benenson whose telephone number is (571) 272-2048. The examiner can normally be reached on M-F (8:20-6:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 ext 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

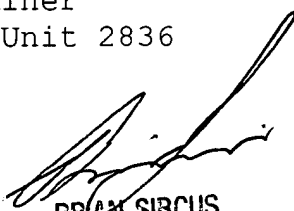
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval

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(PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Boris Benenson  
Examiner  
Art Unit 2836

B.B.



BRIAN SIRCUS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2836